RCA

Highband Addenda

FOR

Color Automatic Timing Corrector

IB-31652

NOTE: The following addenda is primarily intended for MI-43239, Color ATC for TR-50 HB high band machines. It is however applicable for any TR-3, TR-4, or TR-22 series machine which has been high-banded.

GENERAL

1. *Scope*

The overall operation of the Monochrome and Color ATC's remains the same as described in IB-31652, and this addenda (IB-31652-A) will only discuss those areas in which changes have taken place.

2. *Changes*

a. The changes to the Color ATC in which MI-43239 differs from MI-43533 are primarily in the processing of the video signal after color correction.

b. The functions of splitting the video signal into a high-pass and a low-pass signal, and the subsequent processing of the high-pass signal, have been eliminated from the Color ATC. These functions are now performed in new video processing modules which are supplied as part of the high band kits, or as basic modules in the TR-50 machines.

c. Customers who convert low band color recorders to high band, will modify MI-43533 into MI-43239 by elimination of the appropriate circuits according to the instructions provided with the high band kits. Customers who convert low band monochrome machines to high band, or who purchase monochrome TR-50 machines and later convert to color, will purchase MI-43239 directly.

3. *Additional Changes*

As part of the program to improve the quality of the video signal, certain changes were made in the harnessing of the ATC and CATC which are not part of MI-43239. These changes consist principally of:

a. Replacing all video cables with high quality coaxial cabling

b. Removal of the discontinuities presented by the monochrome by-pass relays.

Therefore, the monochrome ATC can no longer be by-passed in high band machines, nor can the modules be removed since they are a permanent part of the video signal path. In the TR-22 High Band machine, the by-pass feature has also been eliminated from the Color ATC as well as from the Mono ATC.

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DESCRIPTION OF CHANGES

1. *Chroma Separator Module (H325/HC13)*

In high band machines the need of the Chroma Separator circuitry is no longer required since the Video Processor and Video Output modules process both the monochrome and color signals.

Refer to figures 4 of this addenda and 96 in IB-31652, and note that the difference consists of the deletion of transistors Q1, Q2, Q3, Q4, Q8, Q9, Q10, Q11 and their associated circuitry.

2. *Color Processor Module (H231/HC15)*

As previously stated, the color processing is not carried out in the video processing and video output modules, and the need for the chroma amplifier, clamps, and drivers in this module are no longer necessary.

Refer to figures 6 of this addenda and 90 in IB-31652 and note that transistors Q21, Q22, Q23, Q27, Q28, Q29, Q35 and their associated components have been deleted. Transistor Q30, originally a Tape/Regenerative Burst Gate is now used as an inverter supplying gated horizontal pulses to a notch pulse generator in the video processing module.

3. *Video Path Changes for TR-3HB, TR-4HB, TR-50*

Associated with the video path changes, is the removal of relays K11 and K12 (MATC bypass). These two relays are removed from the ATC Relay 3A1, and their functions are bypassed by placing jumper wires across the connector 3J1. With the removal of these relays, the Monochrome ATC is connected in the circuit at all times and only the Color ATC has the by-pass facility remaining.

Refer to figures 1 and 2 of this addenda and note that the video from the Demodulator module HA18 is fed via the 2.5 μsec fixed mono delay line, to the ATC Delay module B11. One output from the ATC Delay module B11 is fed to the ATC Reference module B14 and the Processor Amplifier module HA21 via the NC contacts on K21A. A second output from the ATC Delay module is fed directly to the Chroma Separator module C13, and then via a second 2.5 μsec fixed delay line (color) to the Color Delay module C12. The output from the Color Delay module is fed via the NO contacts on relay K21A to the Processor Amplifier module HA21. K21A is therefore still retained as the color by-pass relay for the video, being controlled by the mode switch on the ATC Delay module B11.

TR-3HB, TR-4HB, AND TR-50HB RELAY CHANGES

Relay	*Function*	*Change*	*Module Location*
K11	MATC: Bypass video sync	Relay removed, and all functions bypassed	3A1
K12	MATC: Horizontal phase control and lineback control bus	Relay removed, and all functions bypassed	3A1
K21	CATC: Video bypass and delay control	Retained. Functions as given in IB-31652	3A1
K22	CATC: Delay horizontal reference and delayed tape reference	Retained. Functions as given in IB-31652	3A1
K23	CATC: THAF signal and delayed tape vertical	Retained. Functions as given in IB-31652	3A1
K24	CATC: Color ATC indicator and NPC Bus control	Retained. Functions as given in IB-31652	3A1
K31	NPC: THAF signal and delayed horizontal reference.	Retained. Functions as given in IB-31652	3A1
K32	NPC: THA signal	Retained. Functions as given in IB-31652	3A1
K41	TW/PL control	Retained. Functions as given in IB-31652	3A1

4. *Video Path Changes for TR-22HB*

In the TR-22 machines, the relays are mounted in the rear of the machine on a separate relay panel. In the conversion to high band, the mounting panel and the following relays are discarded: ATC bypass relays 11K11 and 11K12, and CATC bypass relays 11K21, 11K22, 11K23, and 11K24. The remaining relays: NPC relays 11K31 and 11K32, and PL/TW relay 11K41, are mounted on a new panel and located in module area 224 in place of the connector at the rear.

With the relays removed, the monochrome and color by-pass facilities have been removed from the machine and both Mono ATC and Color ATC are connected in circuit at all times. The functions of the remaining relays are the same as described in IB-31652. Figure 54 (CATC Block Diagram), and figure 55 (MATC/CATC Control function) in IB-32114 show the connections of relays 11K31, 11K32, and 11K41 in the high band conversion.

TR-22HB MATC AND CATC RELAY CHANGES

Relay	*Function*	*Change*	*Module Location*
11K11	MATC: Video and sync bypass	Removed and all functions bypassed	Rear shelf
11K12	MATC: Linelock control bus and horizontal phase control	Removed and all functions bypassed	Rear shelf
11K21	CATC: Video bypass delay control	Removed and all functions bypassed	Rear shelf
11K22	CATC: Delayed tape horizontal and delayed horizontal reference	Removed and all functions bypassed	Rear shelf
11K23	CATC: THAF signal and delayed tape vertical	Removed and all functions bypassed	Rear shelf
11K24	CATC: NPC Bus control and color ATC indicator	Removed and all functions bypassed	Rear shelf
11K31	NPC: Delay horizontal reference and THAF signal	Retained. Functions as given in IB-31652	Module 224 area
11K32	NPC: THA signal	Retained. Functions as given in IB-31652	Module 224 area
11K41	TW/PL control	Retained. Functions as given in IB-31652	Module 224 area

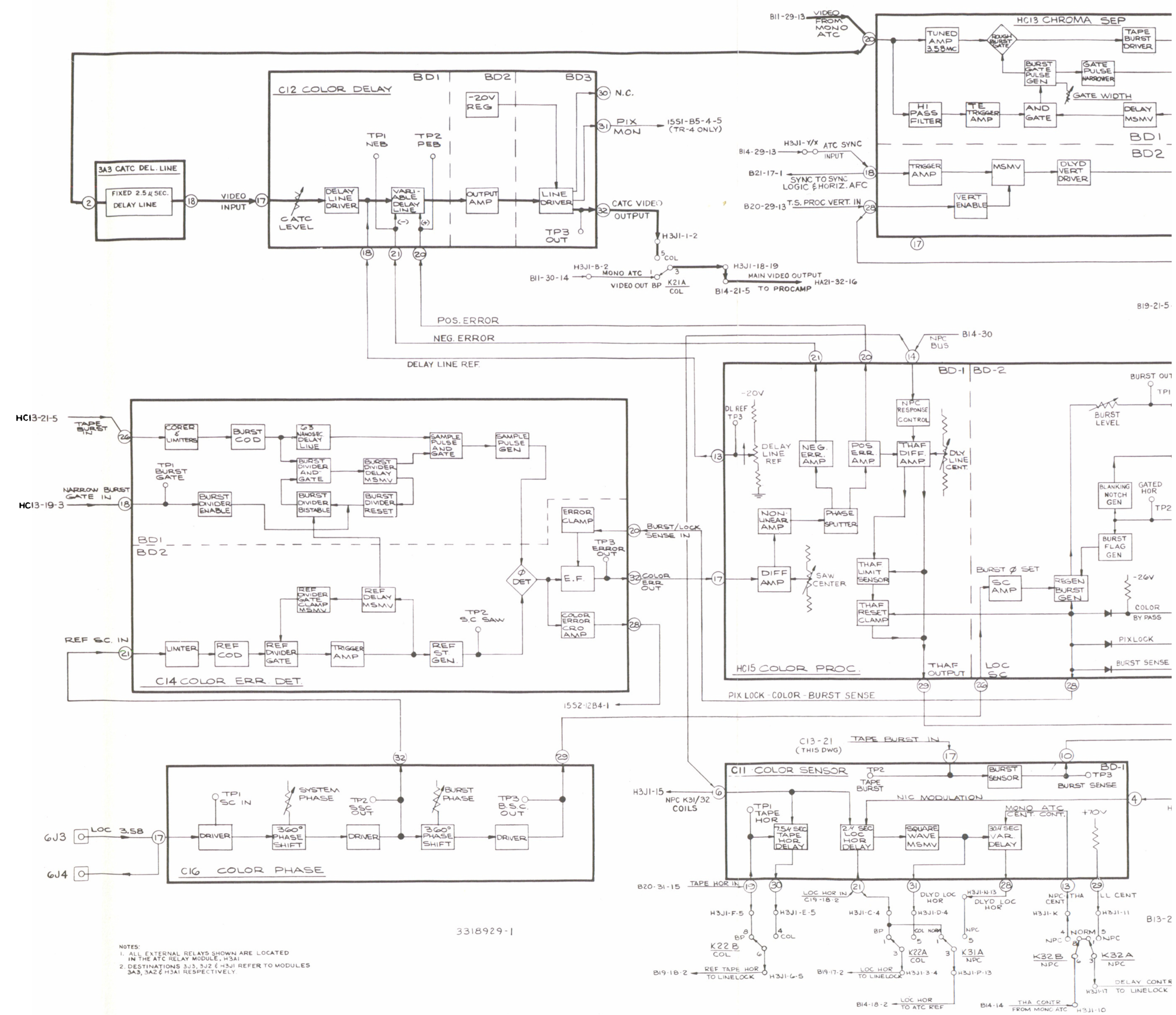
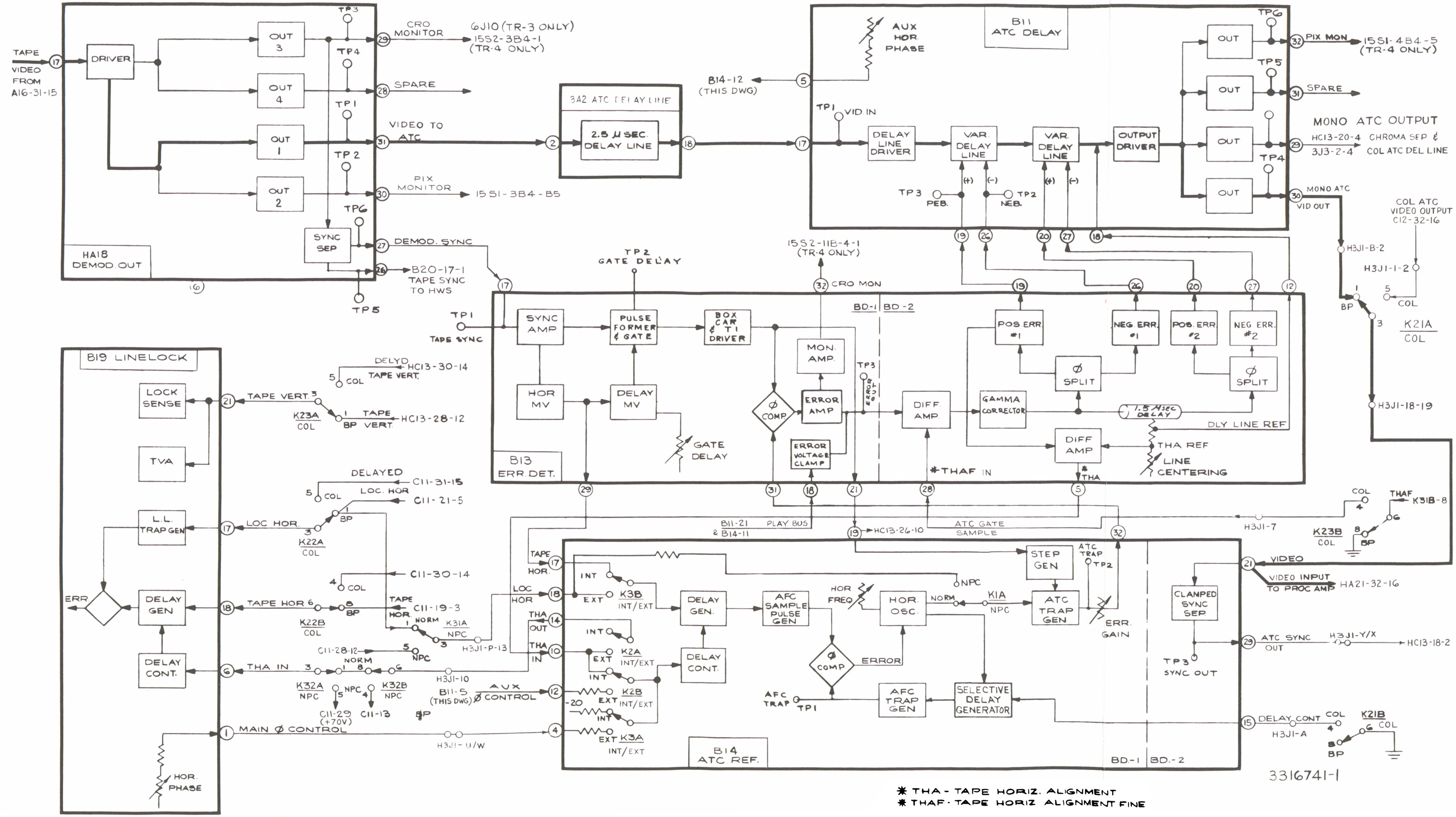


Figure 1—CATC Funct



✱ THA - TAPE HORIZ. ALIGNMENT
✱ THAF - TAPE HORIZ ALIGNMENT FINE

ALL EXTERNAL RELAYS SHOWN ARE LOCATED IN THE ATC RELAY MODULE H3A1. DESTINATIONS 3J3 & H3J1 REFER TO MODULES 3A3 & H3A1 RESP.

Figure 2—MATC Functional Diagram

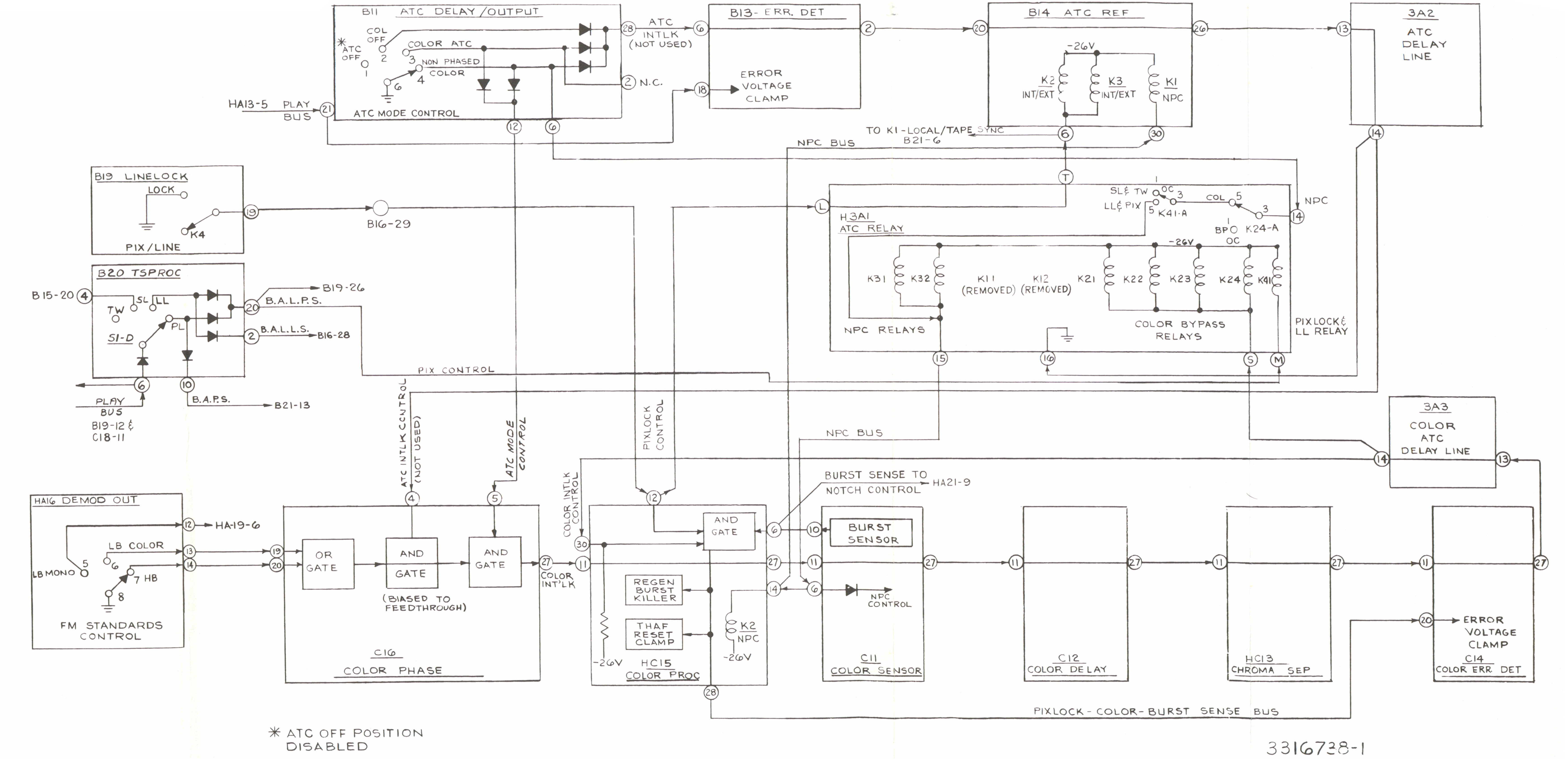


Figure 3—MATC Control Diagram

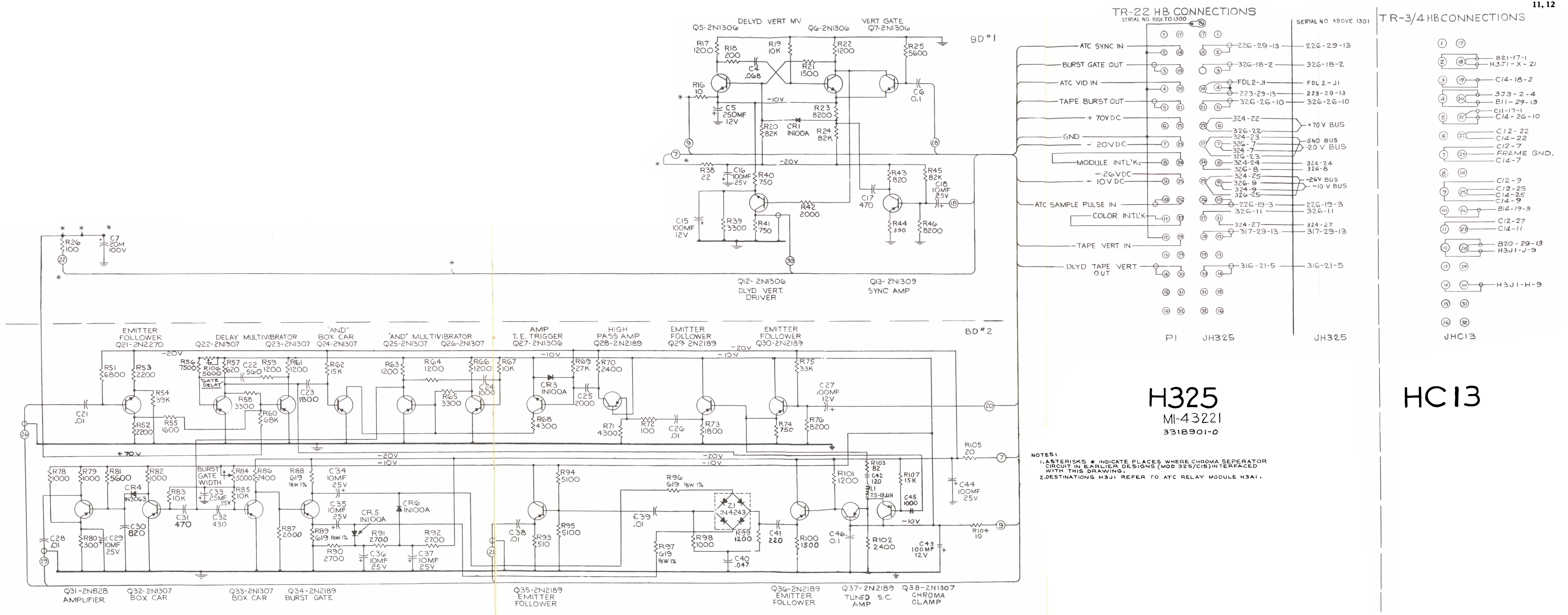


Figure 4—Chroma Separator Schematic Diagram

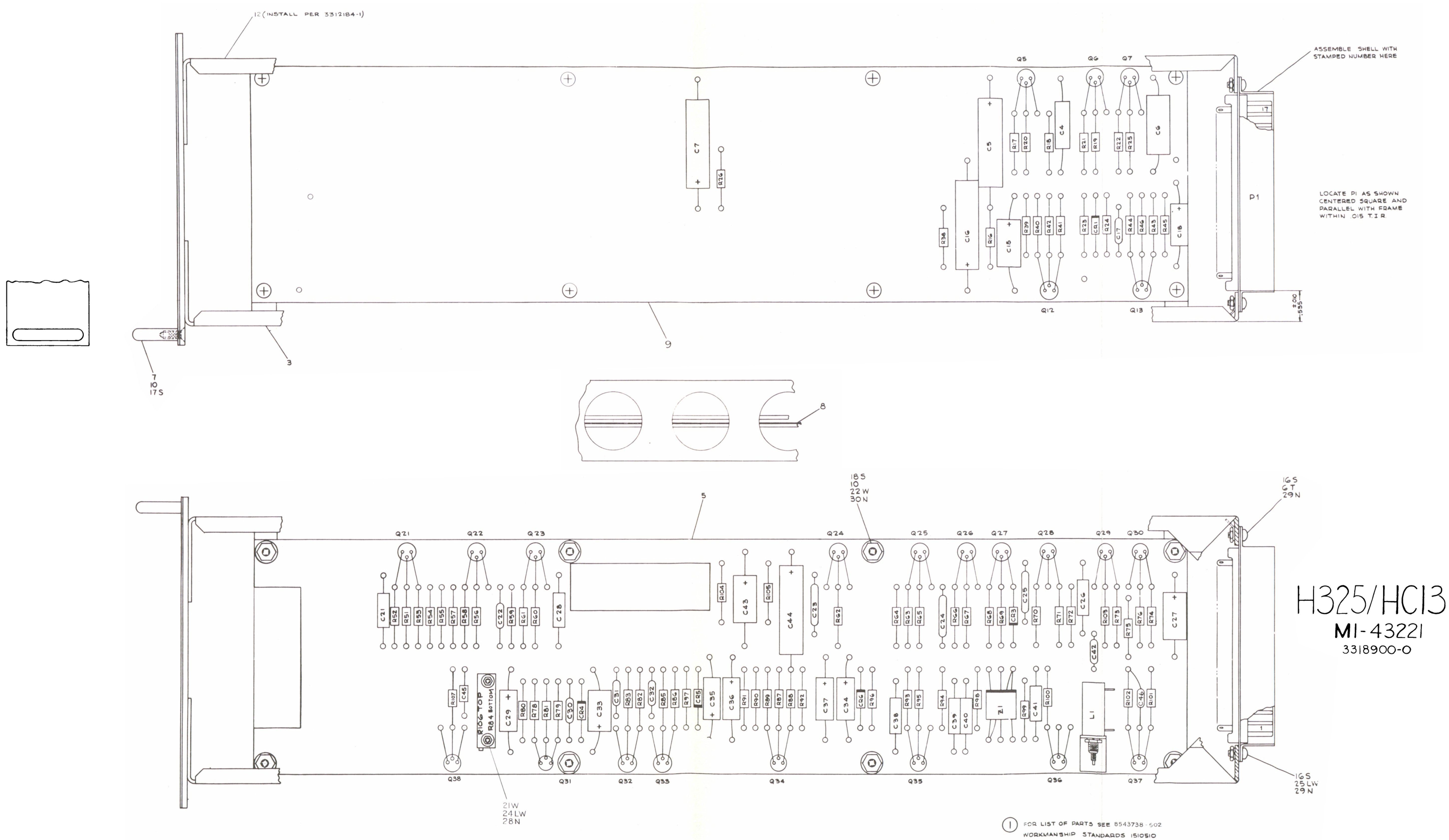


Figure 5—Chroma Separator Assembly Drawing

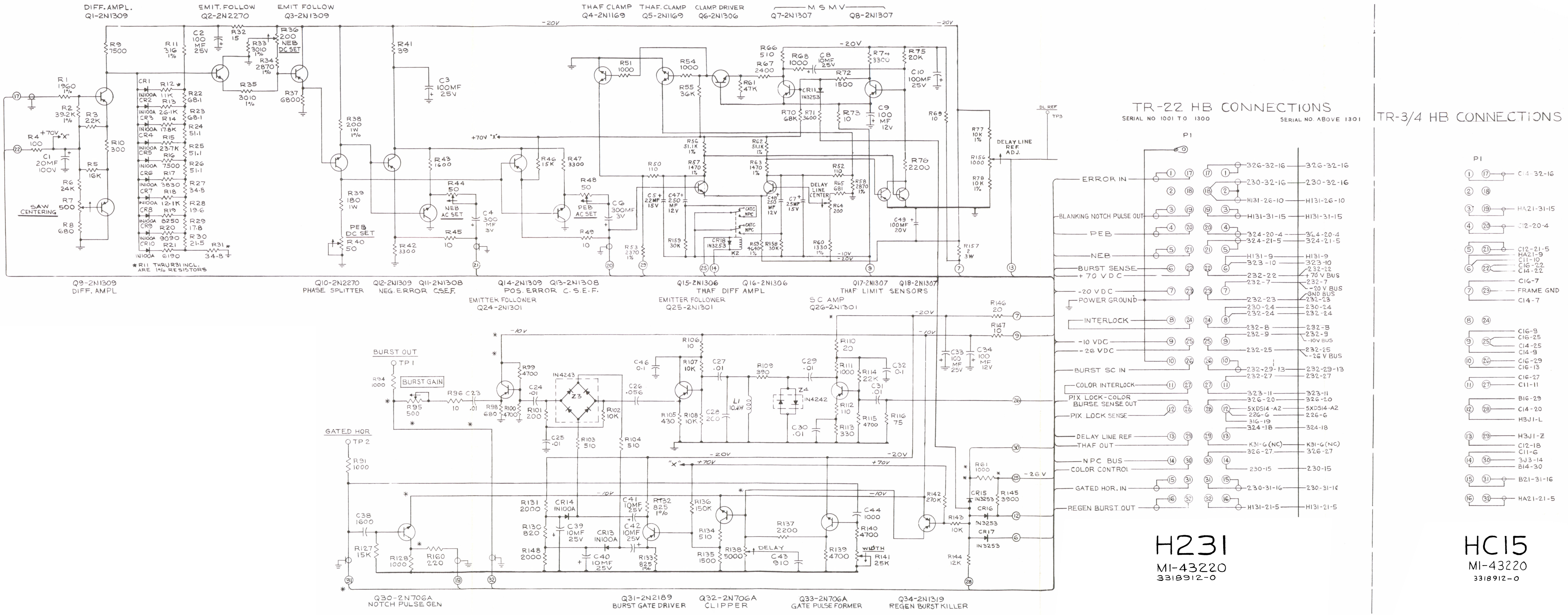


Figure 6—Color Processor Schematic Diagram

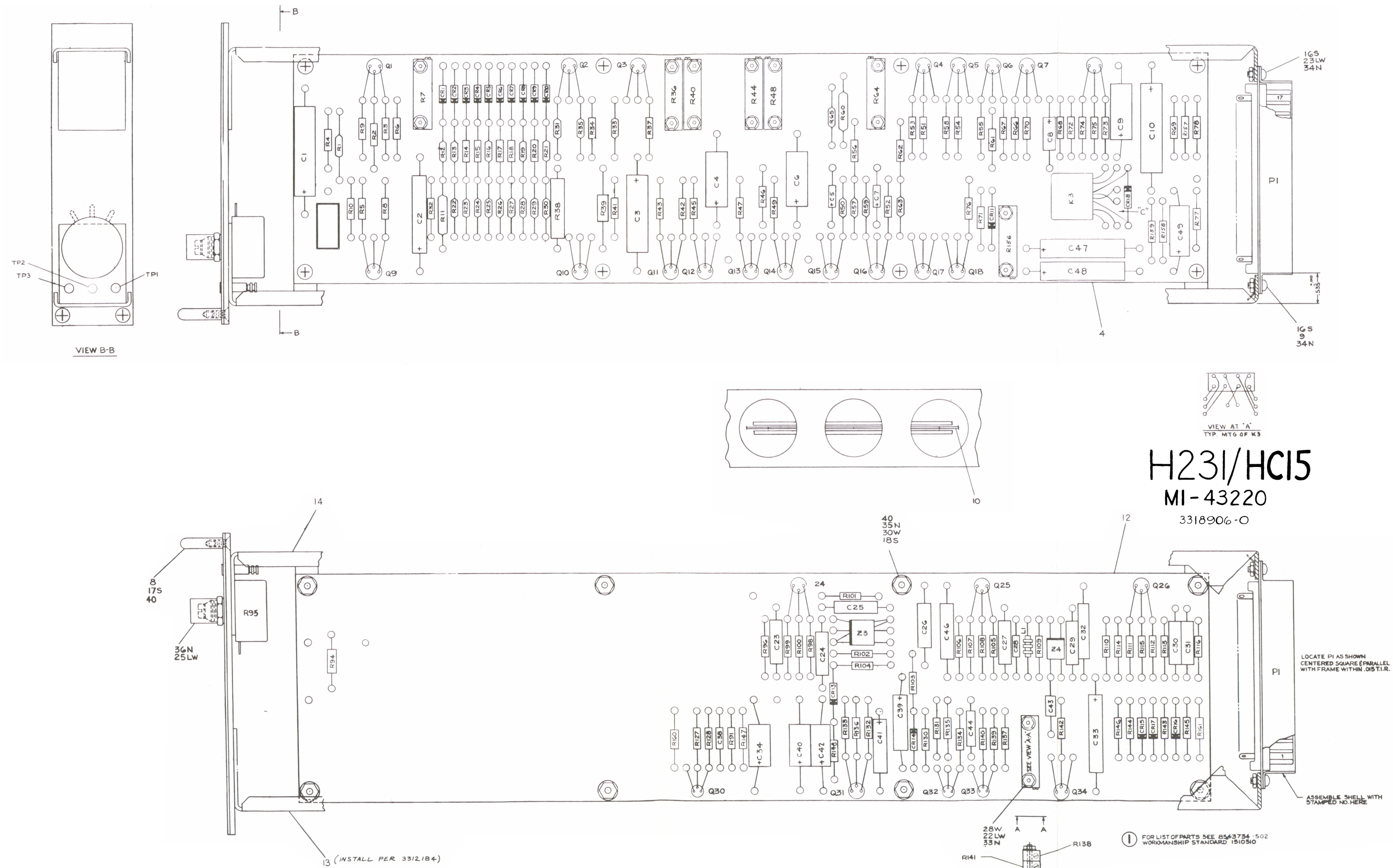
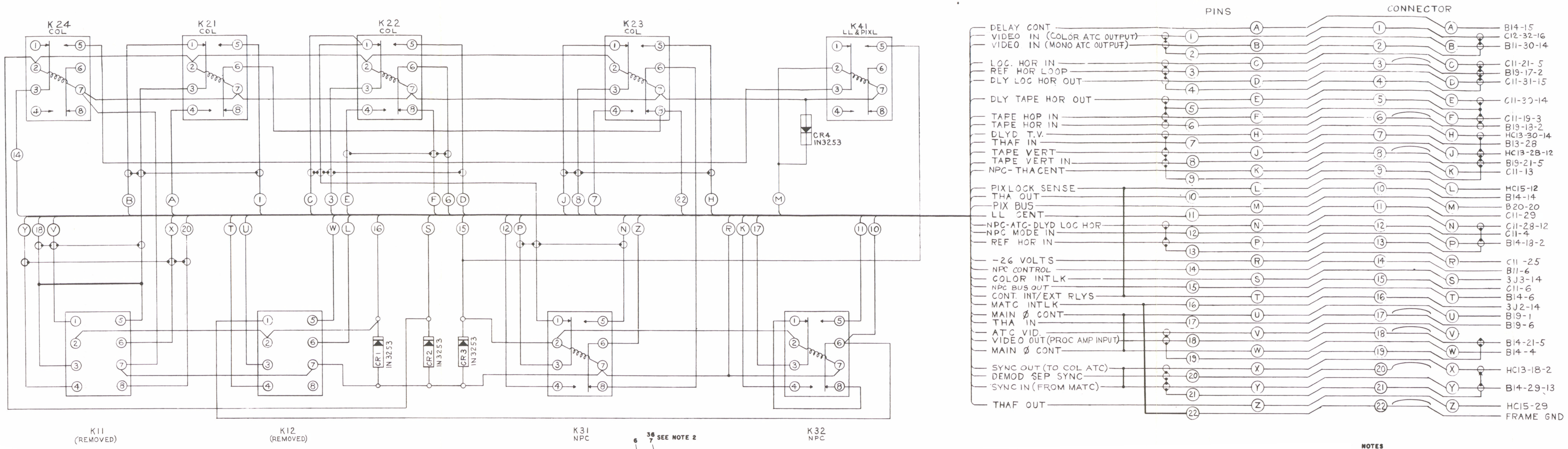
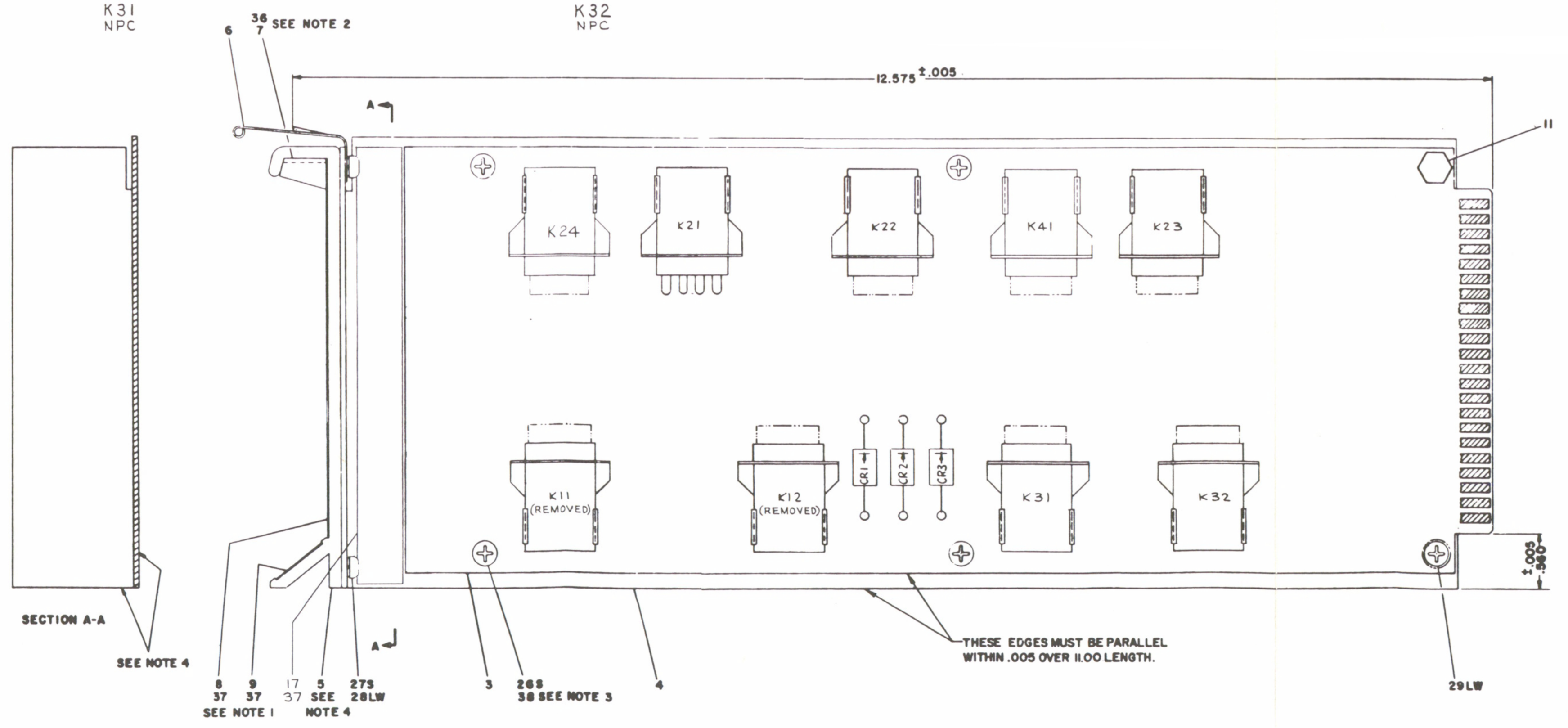


Figure 7—Color Processor Assembly Drawing



NOTE:
CONNECTOR TERMINALS; "3"-"C", "6"-"F", "8"-"J" "17"-"U", "18"-"V", "20"-"X" & "22"-"Z" ARE SHORTING TYPE PINS.
DESTINATIONS 3J3 & 3J2 REFER TO CONNECTOR JACKS IN DELAY LINE MODULES 3A3 & 3A2 RESPECTIVELY.



NOTES

1. ASSEMBLY OF OVERLAYS, PTS 8 AND 9, TO PT 5;&PT 17 TO PT 4. MAKE SURE SURFACES OF PT 5 ARE FREE OF OIL, GREASE OR DIRT. PT 8 MUST BE LOCATED SO THAT IT IS CENTERED HORIZONTALLY ON PT 5 WITH EDGES PARALLEL TO PT 5 WITHIN .010 T.I.R. NO OVERHANG PERMITTED.
   PT 9 MUST BE LOCATED WITH BOTTOM EDGE AGAINST BOTTOM EDGE OF RECESS IN PT 5 AND CENTERED HORIZONTALLY WITHIN .010. NO OVERHANG PERMITTED.
   PT 17 TO BE LOCATED AS INDICATED. APPLY PER MS 2020318-2 USING PT. 37.
2. CEMENT PT 7 TO 5 AS SHOWN USING PT 36 AS PER MS 2020255-21 GUARD, PT 7, MUST BE CENTERED HORIZONTALLY ON PT 5. PT 7 MUST ASSEMBLED AFTER ASSEMBLY OF PT 8.
3. ASSEMBLE PT 3 ON PT 4 AS SHOWN BY DIMENSIONS. THEN APPLY PT 38 TO SCREWS, PT 26, AND SPACER, PT 11 AS PER MS 2020342-1.
4. ASSEMBLE PT 5 TO PT 4 SO THAT SIDE OF PT 5 IS FLUSH WITH BACK SURFACE OF PT 4 AND BOTTOM EDGE OF PT 5 IS FLUSH WITH BOTTOM OF PT 4.

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Figure 8—ATC Relay Module Schematic Diagram